

ATSF #1321

CABOOSE

Preliminary Report
Restoration Report
Addendum
Photos



ATCHISON, TOPEKA AND SANTA FE RAILROAD
CABOOSE #1321

RESEARCH AND RESTORATION REPORT

by

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PREFACE

This Restoration Research Report is one of a series of reports covering pieces restored for the California State Railroad Museum. It is intended primarily as an in-house document telling "what we did and why we did it" in restoring the Atchison, Topeka and Santa Fe Caboose #1321.

The shortness of this report is due in a large part to the fact that this piece was received, restored, and on exhibit before any researchers were employed. Thus, there was no extensive paint sampling or research done. The restoration was simply a halting of deterioration and restoring the car to its condition when last on the railroad. The restoration simply followed standard railroad and good woodworking practices. The detailed history of the restoration may be found in the Chronology of Restoration.

HISTORY OF THE ATCHISON, TOPEKA AND SANTA FE RAILWAY

By Kyle K. Wyatt

On February 11, 1859, the Legislature of the State of Kansas granted a charter to the Atchison and Topeka Railroad, to run from the Missouri River, opposite St. Joseph, to Topeka, Kansas. During the next ten years, there was little activity except to solidify financial resources, change the name to the Atchison, Topeka and Santa Fe Railroad in 1863, and secure a federal land grant subsidy, with the provision that the railroad reach the Colorado border by December 31, 1872. In March 1869, the road purchased its first locomotive, a secondhand 4-4-0 broad gauge locomotive built by the Niles Machine Works of Cincinnati. It was converted to a coal burner, made standard gauge, and became the road's Number 1 locomotive, the "Cyrus K. Holliday".

The border was reached on schedule, and the line continued west at a leisurely pace. As time went on, the scope of the project was increased with the Pacific Coast as the final objective. Survey crews were sent out, but reported back that the only two favorable routes were already claimed by the Texas and Pacific and Southern Pacific in the south, and the Atlantic and Pacific in the north. Seeing no hope with the southern group, the Santa Fe approached the Atlantic and Pacific.

The Atlantic and Pacific Railroad had its origin in July 1866 when Congress granted it a charter to build to the Pacific Coast. The Southern Pacific was authorized to meet the Atlantic and Pacific on the eastern California border.

By 1873, the Atlantic and Pacific was in receivership, and in the reorganization, the Saint Louis and San Francisco Railway Company was organized to acquire the existing line plus the stock and franchise of the old Atlantic and Pacific. The new company had no access to the cash needed to continue construction, so when Santa Fe interests approached them, they were receptive. In January 1880, an agreement was reached splitting the stock of the Atlantic and Pacific between Frisco and Santa Fe and to continue construction of the Atlantic and Pacific from a point near Albuquerque, New Mexico as the Santa Fe.

California railroad interests, notably the Southern Pacific, took a dim view on a competing rail line in the state. By acquiring large blocks of Frisco stock, they were able to control that line and impede progress. Meanwhile, the Southern Pacific built a line to Needles, the point on the California border where the Atlantic and Pacific planned to enter the State, thus blocking the route in California from that point.

In August of 1883, the Atlantic and Pacific forces bridged the Colorado River and joined the Southern Pacific trackage at Needles. Although through traffic began in 1883, the Southern Pacific discouraged this business. As a result of a threat by the Santa Fe to build the Atlantic and Pacific on to San Francisco, Southern Pacific, in October 1884, entered into an agreement to sell the line it had built from Needles to Mojave, and to allow trackage rights from Mojave to San Francisco over its line. The Santa Fe meanwhile purchased the ailing California Southern Railroad and extended it over Cajon Pass to a junction with the Atlantic and Pacific at Barstow, thus reaching the Pacific Coast on its own rails. In May 1890, the Santa Fe acquired the

Frisco, thus consolidating its position. As a result of a reorganization after 1893, when the Santa Fe, Frisco, and Atlantic and Pacific all entered receivership, the Santa Fe acquired the Atlantic and Pacific lines and options in the West while the Frisco was separated completely from the operation.

While the Santa Fe was consolidating its position in the south, Southern Pacific was facing a new challenge in the San Joaquin Valley. Organized by dissatisfied shippers under the leadership of Claus Spreckles in 1893 and started in 1895, the San Francisco and San Joaquin Valley Railroad built south from Stockton reaching Bakersfield in May 1898. While the new road was not a financial success in its own right, it did provide an alternative to the Southern Pacific. Seeing this opportunity, the Santa Fe arranged to purchase the line in December 1898. Using trackage rights from the Southern Pacific over Tehachapi to close the gap between Mojave and Bakersfield, the Santa Fe started through operations in January 1899. The line was then extended from Stockton to Richmond and a San Francisco connection in 1900, with an extension to Oakland in 1904. This completed the major expansion of the Santa Fe in California, the line still in operation today.

As an illustration of the growth of this railroad, their first locomotive was ordered in 1869. By 1875, the line had 36 locomotives and by 1881, they owned 233.

The Santa Fe, working with Union Oil of California to overcome problems of poor coal, perfected the first oil burning locomotive. They were also the first American railroad to establish diesel locomotive shops in 1938.



(Dean Hale collection)

At turn of the century, lines of the Santa Fe System covered some 7900 miles, not including the Southern Kansas Railway of Texas, The Eastern Railway of New Mexico and the Gulf, Colorado & Santa Fe, another 2177 miles.

(From Worley, Iron Horses of the Santa Fe.)

ATCHISON, TOPEKA AND SANTA FE RAILROAD CABOOSE #1321

Atchison, Topeka and Santa Fe Railroad Caboose #1321 was built in 1923 by the American Car and Foundry Company of St. Charles, Missouri. It was one of a series of 240 all wood "way cars" (Santa Fe's terminology for cabooses) built between 1921 and 1923 and numbered 1082-1171 and 1300-1449. Though called "all wood" the roof was of soldered tin and sills were steel. They were ordered to replace older side door way cars, and were the first Santa Fe cabooses without side doors.

In mainline service, these cabooses were replaced by all steel cars in the late 1920s and early 1930s. The 1082-1171 and 1300-1449 series remained in local and branch line service until after World War II. By 1945, 184 still remained in service and a few stayed in service into the early 1960s.

Caboose #1321 was in mainline and branch line service from its construction in 1923, into the 1960s. From the 60s to 1973 it was used as crew living quarters at Riverbank, California. It was acquired by the Pacific Coast Chapter of the Railway and Locomotive Historical Society in 1973. It arrived in the Unit Shop for restoration on June 23, 1976. On December 24, 1976, the caboose was moved to the Passenger Station in Old Sacramento for outdoor display. (See Chronology sheet for the car's known history.)

The dimensions and details of this class of car are shown on the attached Atchison, Topeka and Santa Fe drawings included in this report. It should be noted that while four windows are shown on this drawing for the left side of the caboose, there are three

windows on the right side. The deletion of the fourth window on the right side is due to the stove placement on that side.

These cabooses were originally painted as follows:

Body - "Mineral Brown" a color generally about
halfway between tuscan red and boxcar
red.

Roof - Black, through WW II and
later, mineral brown

Interior - Silver gray with dark
green floor

(A Santa Fe Caboose detailed color scheme is included later in this report.)

There were two changes in lettering styles. The "&" was deleted from A.T.&S.F. in 1940. Later the periods were deleted (1944) and the lettering became simply ATSF. Small car numbers were also added to the ends of the cupola, beginning in 1940.

There were two changes in the underbody arrangement. AB type brake gear replaced the original K type air brake system in the 1940s. The AB gear was generally mounted between the truss rods and the center sill and both tool boxes were retained.

In a few cases, one tool box (usually the left) was removed. Number 1321 was one of the those cabooses so changed. The brake equipment was arranged as shown in the attached drawing (Fig. 2) when the tool box was removed. Only the left tool box was used when the car was restored to its AB type brake configuration.

Though the drawings do not so indicate, the 1300 series was usually equipped with awnings above the cupola side windows. Number 1321 had remnants of these attached when received.

The car was in poor condition when received by the California State Railroad Museum at the Unit Shop and required extensive wood replacement. The end platforms had completely rotted off, end sills, beams, steps, and end platforms required replacement. The wood frame, from near the center of the car to the rear needed renewal. All interior and exterior siding and some studs that could not be repaired were replaced as were some through rods. While the car was undergoing woodwork repair, the trucks along with the center frame, after being dismantled, were sandblasted by the Southern Pacific and painted. A detailed Chronology of the Restoration of ATSF Caboose #1321 is a part of this report.

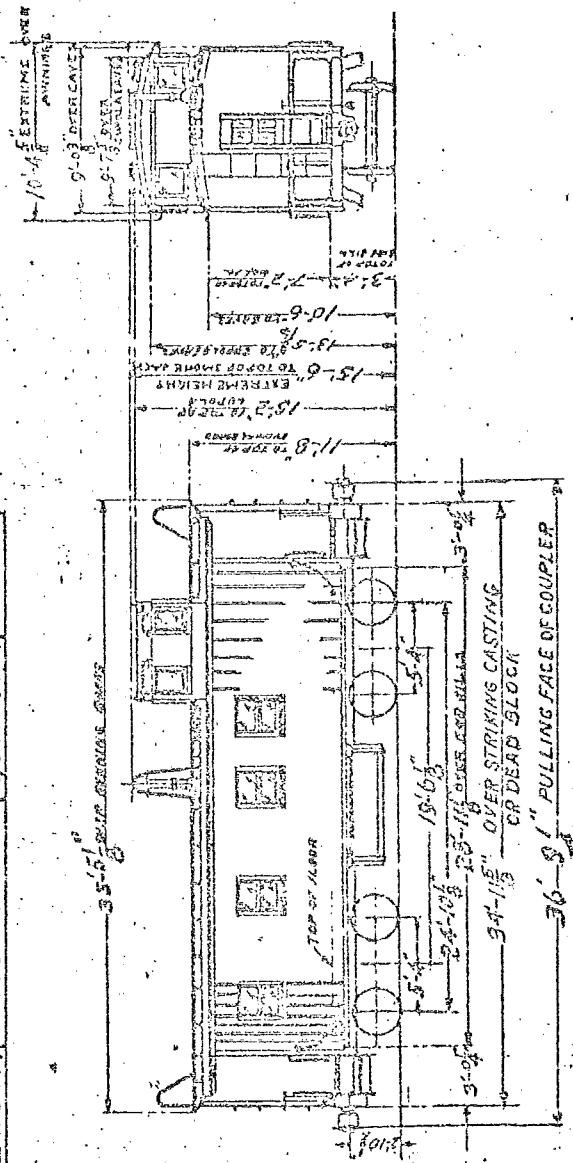
Sister car, #1314, to our #1321 is in possession of the Southern California Chapter of the R&LHS and on display at Pomona, California in its service configuration. This car was visited by Mr. Stephen Drew and others of the museum in March of 1977. Photographs were taken and sketches made to be possibly used in future additional restoration of #1321.

Another car (#1421) of this series is on display at the Orange Empire Trolley Museum and another (#1323), is in the Bakersfield Pioneer Village Museum. Four cabooses of this series (numbers unknown) are in use as restaurants. Two of these are in Pasadena and two are in Anaheim.

C-A 1600-NE

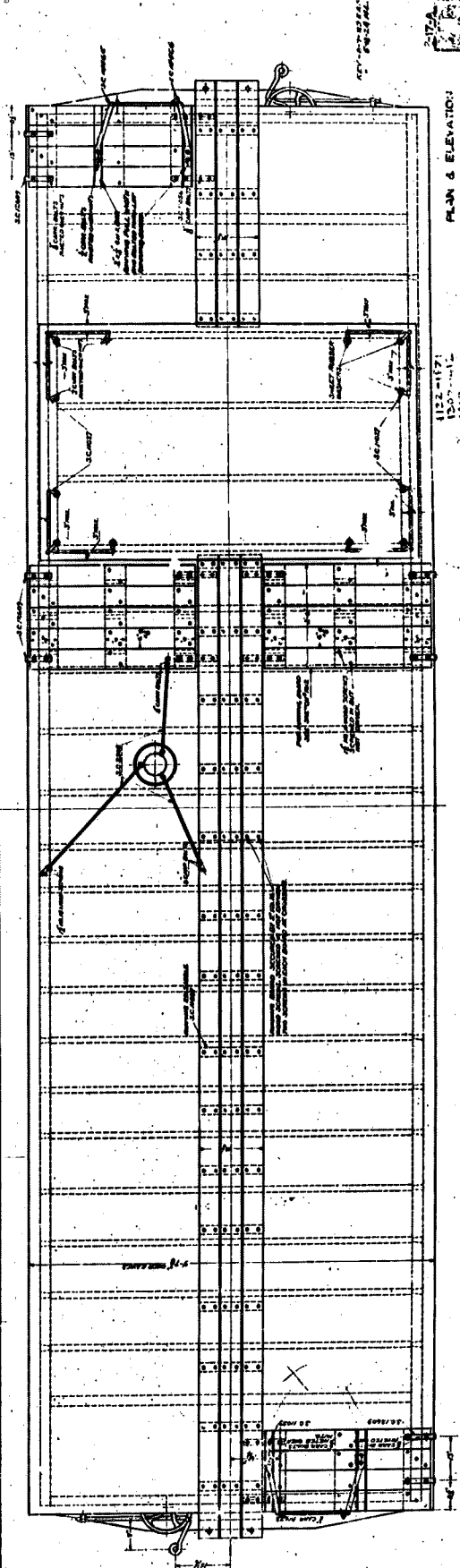
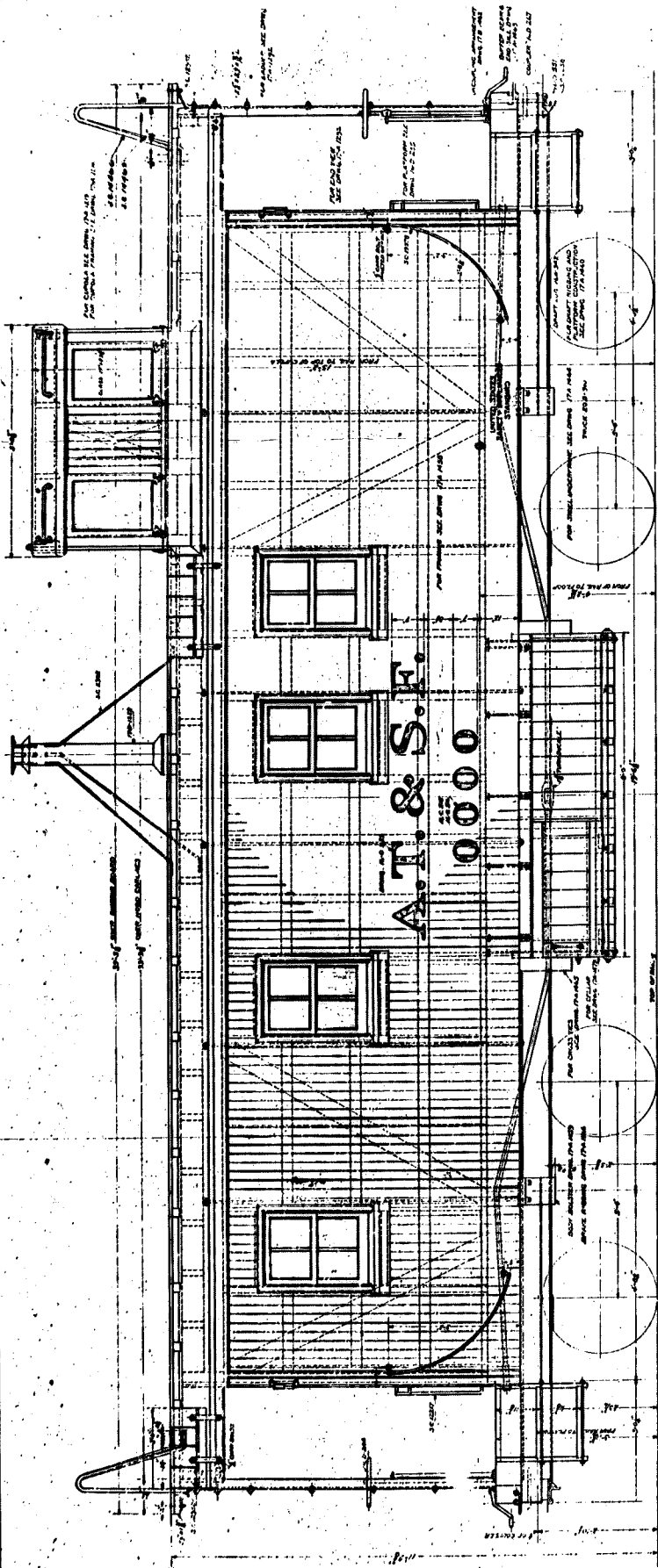
TYPE OF CAR	SERIES	BUILT BY	YEAR BUILT	TYPE OF CAR	SERIES	BUILT BY	YEAR BUILT
CABOOSE (ALL WOOD)	1122-1171	A.C. & F.CO.	1922				
CABOOSE (ALL WOOD)	1300-1412	A.C. & F.CO.	1923				
CABOOSE (ALL WOOD)	1413	A.C. & F.CO.	1923				
CABOOSE (ALL WOOD)	1414-1415	A.C. & F.CO.	1923				
CABOOSE (ALL WOOD)	1416-1449	A.C. & F.CO.	1923				

DESIGNED	AWA
TRACED	AWA
CHECKED	
DATE SPECIFIED	



DESCRIPTION

LIGHT WEIGHT OF CAR	30000 LBS	CENTER TO CENTER OF TRUCKS	19'-6 1/2"	ROOF	SOLDERED TIN
WEIGHT OF BODY		WHEEL BASE OF CAR	24'-10 1/2"	KIND OF TOOL CELLAR	WOOD
WEIGHT OF TRUCK		PULLING FACE OF COUPLERS	36'-9 1/2"	KIND OF COUPLERS	SIMPLEX
INSIDE LENGTH	28'-0"	WIDTH OVER SIDE SILL	9'-3"	SIZE OF SHANK	5X5X6 1/2"
INSIDE WIDTH	8'-0 1/2"	WIDTH OVER SIDE PLATE	9'-3"	DRAW BAR YONE	CAST STEEL
INSIDE HEIGHT	7'-9 1/2"	WIDTH BETWEEN CUPOLA SIDE PLATE	8'-2 1/2"	DRAW BAR ATTACHMENT	RIVET TYPE
INSIDE LENGTH, CUPOLA	5'-4"	WIDTH AT CUPOLA EAVES	9'-0 1/2"	DRAW BAR ATTACHMENT	TOP LIFT
INSIDE WIDTH, CUPOLA	8'-2 1/2"	WIDTH AT RAVES	9'-7 1/2"	HAND BRAKE	SHAFT TYPE
HEIGHT FROM RAIL TO TOP OF FLOOR	4'-2 1/2"	EXTREME WIDTH (OVER AVERAGES)	10'-4 1/2"	DRAFT ATTACHMENTS	BOLTED TO CENTER SILL
HEIGHT FROM RAIL TO TOP OF CUPOLA	11'-0"	HEIGHT FROM RAIL TO EXTREME WIDTH	13'-6"	DRAFT GEAR	MINER TANDEN 612 SPC
HEIGHT FROM RAIL TO TOP OF CUPOLA	15'-2"	EXTREME HEIGHT (OVER SMOKE JACK)	15'-6"	KIND OF TRUCK	ARCH BAR
HEIGHT FROM RAIL TO TOP OF SMOKE JACK	15'-6"	UNDERFRAME	WOOD CHINDEN SILLS	WHEEL BASE OF TRUCK	5'-4"
HEIGHT FROM RAIL TO CUPOLA EAVES	13'-3 1/2"	SUPERSTRUCTURE	WOOD	TRUCK FRAME	ARCH BAR
HEIGHT FROM RAIL TO EAVES	10'-6"	DOORS END	2	JOURNAL BOX LID	MICORD
HEIGHT FROM RAIL TO STEP	23 1/2"	STEPS	2 TREAD	SIZE OF JOURNAL	#17
LENGTH OVER END SILL	28'-11 1/2"	PLATFORMS	2'-6"	WHEELS	33 DIA CAST
LENGTH OVER STRUTTING CASTINGS	34'-11 1/2"	END	WOOD	FRAME BEAM	CRECO 2



PLAN & ELEVATION

1122-1127
1307-11
1415-11
1416-11
1417-11

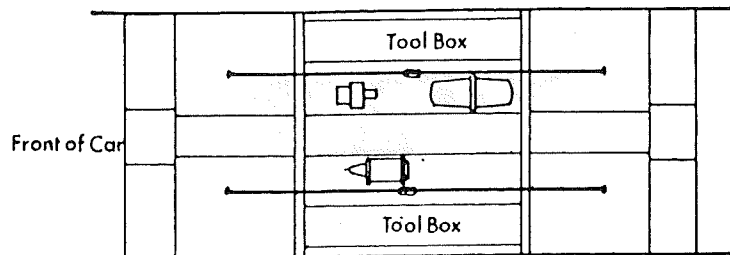


FIGURE 1. ARRANGEMENT OF "AB" BRAKE EQUIPMENT WITH 2 TOOL BOXES

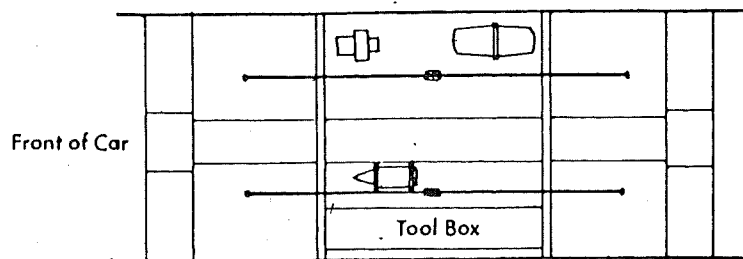


FIGURE 2. ARRANGEMENT OF "AB" BRAKE EQUIPMENT WITH 1 TOOL BOX

From Southwestern Prototype Modeler November-December 1976

Atchison, Topeka and Santa Fe Railroad

Caboose #1321

Chronology

- 1923 Built by American Car and Foundry Co., St. Charles, Missouri.
- 1923-196(?) In service with ATSF.
- 196(?) - 197(?) Car used as crew living quarters at Riverbank, California, at least through 1968. (Car was seen in a group of cars at Riverbank, California, and number of car recorded by a rail fan in 1968.)
- 1973 Acquired by Pacific Coast Chapter of Railway and Locomotive Historical Society.
- 1976 (May 14) Caboose inspected at Richmond, California, by personnel of State Parks and Recreation to determine overall condition.
- 1976 (May 20) Contract awarded McLaughlin Draying Company to bring caboose to Sacramento for restoration. Car body to travel by flat car and trucks to be moved by highway truck.
- 1976 (June 20) Caboose body and trucks reassembled in Sacramento Southern Pacific Car Shop 9.

- 1976 (June 23) Caboose moved to unit shop by Southern Pacific switcher crew and restoration begins.
- 1976 (December 9) Stove arrives from Richmond, California Santa Fe Shops for restoration.
- 1976 (December 24) Southern Pacific switcher moves caboose from shop on to Walnut Grove branch line to the Central Pacific Passenger Station for display. At presentation ceremonies, caboose has a white ribbon and large Christmas card saying Merry Christmas.

ATSF Caboose Color Scheme

Car Body - exterior, mineral brown
Car Body - interior, silver gray
Roof - main, black
Roof - cupola, black
Interior Lockers - silver gray
Interior Bunks - silver gray
Floors - interior, dark green
Underframe - black
Trucks - mineral brown
Tool Box - mineral brown
Smokestack - black
Handrail - black
Columns - black
Letters and Numbers - white
Facia Boards - (if any) none
End Platforms and Steps - black and mineral brown

From: Santa Fe Car and Locomotive
Plans for Model Railroaders.

CHRONOLOGY OF RESTORATION

ATSF CABOOSE #1321

May 1976 State of California, Department of Parks and Recreation, Sacramento Area Manager Raymond E. Westberg, and Special Consultant Kenneth W. Yeo inspected Santa Fe Caboose #1321 at Richmond, California. It was noted that end platforms and supports were almost completely rotted away, and steps were rusted through in several places. The end beams were too rotted to use. Doors were broken on both ends of caboose and floor was badly rotted at cupola end of car. The windows were in fair shape, but the roof was rotted through in four places. Chimney and stove were missing. Trucks, couplers, and underframe were in good condition.

Later in May, McLaughlin Draying Company was awarded contract to load caboose aboard flat car at Richmond, California. Trucks to be brought to Sacramento by McLaughlin Draying Company truck.

June 1976 ATSF Caboose #1321 arrived at Southern Pacific Railroad yards, Sacramento, California aboard bulkhead flatcar and placed in Car Shop 9 where it was placed on its trucks and moved to the Unit Shop, where its restoration began.

The caboose was jacked up and body placed on standees. The trucks were removed for disassembly and sandblasting by Southern Pacific. The trucks were red, but traces of black were found on one truck.

July 1976 The caboose wheels were sandblasted removing the red overspray and rust. After return from Southern Pacific, the trucks were cleaned of sand and all parts given prime coat of paint. Later all grab irons, ladders, and railings were removed. Siding was removed from caboose. (Almost all siding was rotten at the bottom.) The only color found was mineral red.

The metal sheeting was removed from roof. Roof boards were rotten where chimney was missing and where sheet metal leaked. Eighty-five percent of boards were unusable. Eaves were badly rotted and were not original. The cupola roof had been replaced recently and upon inspection was found to be in good condition.

All grab irons had red paint under white. Some end railings had black under red. Ladders were metal rungs on oak wood supports. Supports were too rotted to use.

The remains of roofjack removed. Roof bows were in good condition. Cutting levers and end beams were removed.

August 1976 The side sills were spliced at center of car. New sills replaced rotted out ones at cupola end. End sills were replaced at both ends of frame. Remains of tool box were discovered on cross beams. Support rods were still in place but bent up out of the way.

Southern Pacific returned wheels from sandblasting. All studs that were rotten were replaced or repaired as needed. All of floor removed and steel center sill cleaned and sandblasted.

The wheels were primed. (It is not Railroad practice to paint wheels; however, caboose will be on display outside so paint will protect metal and give caboose a cared-for appearance and, perhaps, discourage vandalism.) The trucks were completely reassembled.

October 1976 After sandblasting the steel center sill, caboose was returned to the Unit Shop for continuing restoration.

The caboose was placed back on trucks. The brake rigging was installed and body is blocked up to stop swaying and to hold level. End beams were cut to shape by contractor and mounted after being notched and drilled. Platform supports were installed.

A new roof was installed. (Tongue and groove lumber supplied by Southern Pacific.) The original flooring was sorted and usable pieces reinstalled. New flooring was installed to complete the job.

November 1976 New lumber for the interior was planned and run through the shaper for edge bevel and tongue and groove. Fifteen pound building paper placed between studs and siding and interior residing replaced.

The windows were cleaned and repaired. (They appeared to be original windows.) The doors were cleaned and repaired. The latch was missing from one door. The other door had latch and Yale lock, neither original. New door frames made of oak to replace the originals that were split and damaged beyond reuse. The cupola windows were repaired.

Exterior lumber was taken over to State Architect's shop to be planed (since no planer available in the shop) and then was edge beveled and tongue and grooved. The outside siding was made of redwood to be able to withstand the elements better since the caboose will be displayed outside.

December 1976 Saturday - Volunteers Barry Garland, Richie Garland, Stephen Drew, Rick Crumrine, Joe Passentino, and Ken Yeo painted the caboose interior (green). The exterior siding was installed and with Southern Pacific supplying 55 gallons of boxcar red paint. The exterior of the caboose was painted by the middle of the month.

The cupola platforms were installed. Installed metal bunk dividers inside. The stove arrived from Santa Fe and was sandblasted and refinished. The windows were installed. A coal bunker was removed from Southern Pacific Caboose #1161 and installed in our ATSF Caboose #1321. The Mendenhall Industrial Sheet Metal Co. made a stove pipe cap and adapter so remains of original roof jack could be used. (No information on original pipe at this time.)

Special redwood eaves were made and installed to replace the fir ones that were too rotted for reuse. The platform supports and platforms were installed and painted. Wood steps were built to replace the metal ones. (Patterned after ATSF caboose in Caboose Cyclopedia.)

The steps were installed and the doors and windows were fitted.

New replacement tool boxes were completed. The tool box was built three inches closer to edge of car body to conceal AB brake equipment and prevent vandalism on valves and piping. The ladders, railings, and grab irons were installed on ends. Wallace Ripley arrived and installed sheet metal roofing. The newly refinished stove was installed with the new roof jack and stove pipe. Cutting levers installed.

December 24, 1976 The caboose was readied for moving to Central Pacific Passenger Station. Fire was built in the stove, beans were placed on it to cook, and coffee was made. Southern Pacific switch crew arrived at 9:15 a.m. and the caboose was pulled to the Southern Pacific turntable and turned so that the cupola would be at the rear when on display. The caboose was then taken across Southern Pacific main line to Walnut Grove Branch and down to the C.P.P.S. lead. Newspaper, radio, and television reporters and photographers were on hand to cover the event. White ribbon was tied around caboose and Christmas greeting card fastened to side. The caboose becomes part of the 1920s freight train exhibit.

January 1977 New roof walks and supports were fabricated, painted, and installed. Top bunks were constructed and installed.

May 1977 Pacific Coast Chapter, Railway and Locomotive Historical Society visits museum and Dick Esselbach painted "A.T.&S.F." on side of caboose.

BIBLIOGRAPHY

American Railway Association, Car Builders Cyclopedia, New York: Simmons - Boardman Publishing Co., 1925.

Atchison, Topeka and Santa Fe Drawing C-4, Topeka, Kansas, February 26, 1945.

"Caboose card 1879-1943." Train Shed Cyclopedia No. 11, Novato, California: Newton K. Gregg, pub., September 1973.

"Caboose Donated to Citizenry for Christmas." Sacramento Union, January 2, 1977.

Duke, Donald and Stan Kestler, Santa Fe ... Steel Rails Through California San Marino, California: Pacific Railroad Publications, Inc., 1963.

Ellington, Frank M., Caboose Cars of the Santa Fe Railway, Colfax, Iowa: Railroad Press, 1977.

Hendrickson, R. H., "Ambroids ATSF Wood Caboose Kit," Southwestern Prototype Modeler, November-December 1979, pp. 21-23.

Observation Platform, Official publication of Southern California Chapter, Railway and Locomotive Historical Society, Inc., March 1977.

Poor's Manual of the Railroads of the United States, New York: Poor's Railroad Manual Co., 1915.

Santa Fe Car and Locomotive Plans for Model Railroaders, The Trainmasters, Inc.

The Western Railroader, #434, San Mateo, California, August 1976.

Wiley, C. F., "Crummies," The Model Railroader, July 1948, pp. 456-459.

Worley, E. D., Iron Horses of the Santa Fe, Dallas: Southwest Railroad Historical Society, 1965.

"Wrapped in Red Ribbon," Sacramento Bee, December 24, 1976.

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Photo #1

ATSF Caboose #1321 at Richmond in 1972. Note that smoke stack has been removed and electrical conduit added above the two forward windows. Awnings are still in place. Note end numbers and AB brake lettering. (CSRM Photo)



Photo #2

Caboose #1321 undergoing restoration in the CSRM Restoration Shop.
Trucks and siding have been removed. (CSRM Photo, 1976)



Photo #3

The #1321 completely restored, except for roof walks, and "gift wrapped" for presentation at the Central Pacific Passenger Station in Old Sacramento. (CSRM Photo, Christmas 1976)